

Amendment to the Claims:

The following Listing of the Claims replaces all prior versions and listings of the claims in this application.

Listing of the Claims:

Claim 1 (Currently Amended): A chromatographic assay method, comprising the steps of:

- a) providing a polymeric membrane type flow matrix attached to a liquid-impervious backing, which flow matrix permits a capillary force assisted lateral flow therethrough, and at least a part of which flow matrix contains ion-exchange ~~function by the action of ion-exchange~~ functional groups selected from the group consisting of diethyl aminoethyl (DEAE), trimethyl hydroxypropyl (QA), quaternary aminoethyl (QAE), quaternary aminomethyl (Q), diethyl-(2-hydroxypropyl)-aminoethyl, triethyl aminomethyl (TEAE), triethylaminopropyl (TEAP), polyethyleneimine (PEI), methacrylate, carboxymethyl (CM), orthophosphate (P), sulfonate (S), sulfoethyl (SE) and ~~sulfopropyl~~ sulfopropyl (SP), wherein the flow matrix is a porous polymer material with pores in the range of 0.01-20 μm ;
- b) treating the flow matrix to reduce or eliminate nonspecific adsorption properties of the flow matrix;
- c) applying to the flow matrix a sample containing at least two components;
- d) initiating a first lateral flow of aqueous fluid to transport the sample through the flow matrix and chromatographically separate each of the two components from one another and from the sample as they flow along the lateral flow matrix therein;
- e) interrupting said lateral flow; and either
- f1) detecting at least one of said separated components on the flow matrix in the position reached by the respective component when the flow was interrupted; or

- f2a) initiating a second flow of aqueous fluid to transport the components in a direction substantially transverse to the direction of the first lateral flow;
- f2b) interrupting said second lateral flow; and
- f2c) detecting at least one of said separated components on the flow matrix in the position reached by the respective components when the second lateral flow was interrupted.

Claim 2 (Original): The method according to claim 1, wherein the separated components are immobilized on the flow matrix in their separated positions prior to detecting said at least one component.

Claim 3 (Original): The method according to claim 2, wherein the separated components are chemically immobilized on the flow matrix.

Claim 4 (Original): The method according to claim 2 or 3, wherein the flow matrix is subjected to a staining procedure to detect the component or components.

Claim 5 (Original): The method according to claim 4, wherein said staining procedure is selected from protein staining, lipid staining, carbohydrate staining, and DNA-staining.

Claim 6 (Original): The method according to claim 2 or 3, wherein a labeled reactant capable of specifically binding to said at least one component is added to the membrane for the detection thereof.

Claim 7 (Previously Presented): The method according to claim 1, wherein the polymeric membrane type flow matrix is first placed on a flat support surface with the backing contacting the surface.

Claim 8 (Currently Amended): A chromatographic device comprising a polymeric membrane type flow matrix attached to a liquid-impervious backing, which membrane permits a capillary force assisted lateral flow therethrough and contains ion-exchange functional groups selected from the group consisting of diethyl aminoethyl (DEAE), trimethyl hydroxypropyl (QA), quaternary aminoethyl (QAE), quaternary aminomethyl (Q), diethyl-(2-hydroxypropyl)-aminoethyl, triethyl aminomethyl (TEAE), triethylaminopropyl (TEAP), polyethyleneimine (PEI), methacrylate, carboxymethyl (CM), orthophosphate (P), sulfonate (S), sulfoethyl (SE) and ~~sulfoethyl~~ sulfopropyl (SP), wherein the flow matrix is a porous polymer material with pores in the range of 0.01-20 μm and is adapted to chromatographically separate each of at least two components from one another and from a sample containing the components as they flow along the lateral flow matrix.

Claim 9 (Original): An apparatus for determining components in a sample, which apparatus comprises a chromatographic device according to claim 8, and means for initiating and maintaining a liquid flow through the membrane.

Claim 10 (Original): The apparatus according to claim 9, which further comprises reagents for detecting one or more sample components separated in said device, and optionally also reagents for chemically immobilizing the separated components in the device prior to the detection.

Claim 11 (New): A chromatographic assay method, comprising the steps of:

- a) providing a porous polymeric membrane flow matrix attached to a liquid-impervious backing, which flow matrix permits a capillary force assisted lateral liquid flow therethrough, and at least a part of which flow matrix contains ion-exchange functions;
- b) treating the flow matrix to reduce or eliminate unspecific adsorption properties of the flow matrix, wherein the treated flow matrix containing ion-exchange functions is adapted to chromatographically separate each of at least two components from one another and from a sample containing the components during their transport along the flow matrix;
- c) applying to the flow matrix a sample containing at least two components;
- d) initiating a first lateral flow of aqueous fluid to transport the sample through the flow matrix and chromatographically separate each of the two components from one another and the sample during their transport along the flow matrix;
- e) interrupting said lateral flow; and either
 - f1) detecting at least one of said separated components on the flow matrix in the position reached by the respective component when the flow was interrupted; or
 - f2a) initiating a second flow of aqueous fluid to transport the components in a direction substantially transverse to the direction of the first lateral flow;
 - f2b) interrupting said second lateral flow; and
 - f2c) detecting at least one of said separated components on the flow matrix in the position reached by the respective components when the second lateral flow was interrupted.

Claim 12 (New): A chromatographic assay method, comprising the steps of:

- a) providing a porous polymeric membrane flow matrix attached to a liquid-impervious backing, which flow matrix permits a capillary force assisted lateral liquid flow therethrough, and at least a part of which flow matrix contains ion-exchange functions, wherein the flow matrix is treated to reduce or eliminate unspecific adsorption properties of the flow matrix and wherein the flow matrix is adapted to chromatographically separate each of at least two components from one another and a sample containing the components during their transport along the flow matrix;
- b) applying to the flow matrix a sample containing at least two components;
- c) initiating a first lateral flow of aqueous fluid to transport the sample through the flow matrix and chromatographically separate each of the two components from one another and from the sample during their transport along the flow matrix;
- d) interrupting said lateral flow; and either
 - e1) detecting at least one of said separated components on the flow matrix in the position reached by the respective component when the flow was interrupted; or
 - e2a) initiating a second flow of aqueous fluid to transport the components in a direction substantially transverse to the direction of the first lateral flow;
 - e2b) interrupting said second lateral flow; and
 - e2c) detecting at least one of said separated components on the flow matrix in the position reached by the respective components when the second lateral flow was interrupted.

Claim 13 (New): A chromatographic device, comprising a porous polymeric membrane flow matrix attached to a liquid-impervious backing, which membrane permits a capillary force assisted lateral fluid flow therethrough, contains ion-exchange functions, and

is adapted to chromatographically separate at least two components from a sample and from one another during their transport along the flow matrix.

Claim 14 (New): The method according to claim 1, wherein the two components comprise proteins having different isoelectric points.

Claim 15 (New): The method according to claim 11, wherein the two components comprise proteins having different isoelectric points.

Claim 16 (New): The method according to claim 12, wherein the two components comprise proteins having different isoelectric points.

Claim 17 (New): The apparatus according to claim 8, adapted to chromatographically separate at least two proteins having different isoelectric points from one another and from a sample containing the proteins as they flow along the lateral flow matrix.

Claim 18 (New): The apparatus according to claim 13, adapted to chromatographically separate at least two proteins having different isoelectric points from one another and from a sample containing the proteins as they flow along the lateral flow matrix.

Claim 19 (New): The method according to claim 1, wherein the two components comprise proteins, peptides, nucleic acids or polynucleotides having different isoelectric points.

Claim 20 (New): The method according to claim 11, wherein the two components comprise proteins, peptides, nucleic acids or polynucleotides having different isoelectric points.

Claim 21 (New): The method according to claim 12, wherein the two components comprise proteins, peptides, nucleic acids or polynucleotides having different isoelectric points.

Claim 22 (New): The apparatus according to claim 8, adapted to chromatographically separate at least two protein, peptide, nucleic acid or polynucleotide components having different isoelectric points from one another and from a sample containing the components as they flow along the lateral flow matrix.

Claim 23 (New): The apparatus according to claim 13, adapted to chromatographically separate at least two protein, peptide, nucleic acid or polynucleotide components having different isoelectric points from one another and from a sample containing the components as they flow along the lateral flow matrix.